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WHAT IS CLAIMED IS:

1. An electronic program information preparing and transmitting apparatus, comprising:
- electronic program information preparing means for preparing general electronic program information, in which electronic program information of a plurality of broadcast service enterprisers is described on a general level, and preparing individual electronic program information, in which the electronic program information of one broadcast service enterpriser is described on an individual level, for each broadcast service enterpriser and
- electronic program information transmitting means for transmitting the general electronic program information of the broadcast service enterprisers and the individual electronic program information of the broadcast service enterprisers prepared by the electronic program information preparing means.
2. An electronic program information preparing and transmitting apparatus according to claim 1 in which the general electronic program information and the individual electronic program information corresponding to each broadcast service enterpriser are prepared according to electronic program information detailed degree setting information which indicates a detailed degree of the

individual electronic program information described on the individual level and a detailed degree of the general electronic program information described on the general level.

5 3. An electronic program information preparing and transmitting apparatus according to claim 1 in which the general level corresponds to a low detailed degree, and the individual level corresponds to a high detailed degree..

10 4. An electronic program information preparing and transmitting apparatus according to claim 1 in which the electronic program information transmitting means comprises:

15 electronic program information outputting means for outputting the general electronic program information of the broadcast service enterprisers and the individual electronic program information of the broadcast service enterprisers prepared by the electronic program information preparing means; and

20 electronic program information multiplexing means for multiplexing the general electronic program information of the broadcast service enterprisers and one piece of individual electronic program information of one broadcast service enterpriser output by the electronic program information 25 outputting means to produce combined electronic program

information for each piece of individual electronic program information, and transmitting each piece of combined electronic program information to a viewer through a transmission line.

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5. An electronic program information preparing and transmitting apparatus according to claim 1 in which transport stream specifying information indicating a transport stream is prepared by the electronic program information preparing means for each piece of individual electronic program information of one broadcast service enterpriser, and the electronic program information transmitting means comprises:

electronic program information outputting means for outputting the pieces of general electronic program information of the broadcast service enterprisers, the pieces of individual electronic program information of the broadcast service enterprisers and the pieces of transport stream specifying information prepared by the electronic program information preparing means; and

electronic program information multiplexing means for multiplexing the pieces of general electronic program information of the broadcast service enterprisers and one piece of individual electronic program information of one broadcast service enterpriser output by the electronic program

information outputting means to produce combined electronic program information for each piece of individual electronic program information, carrying each piece of combined electronic program information in a transport stream, which is

5 indicated by the piece of transport stream specifying information corresponding to the piece of individual electronic program information multiplexed in the piece of combined electronic program information, and transmitting the pieces of combined electronic program information carried in

10 the transport streams to the viewer.

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6. An electronic program information preparing and transmitting apparatus according to claim 5 in which enterpriser service correspondence information, which

15 indicates the correspondence between each broadcast service enterpriser and a channel service carried in one transport stream is prepared by the electronic program information preparing means, and the transport stream specifying information is prepared according to the enterpriser service

20 correspondence information.

7. An electronic program information preparing and transmitting apparatus according to claim 6 in which one or more television programs provided by each broadcast service

25 enterpriser are carried in one transport stream of the

broadcast service enterpriser and are broadcasted on the viewer side, and the transport stream for carrying each piece of combined electronic program information, in which one piece of individual electronic program information corresponding to 5 one broadcast service enterpriser is multiplexed, agrees with that of the broadcast service enterpriser.

8. An electronic program information preparing and transmitting apparatus according to claim 1 in which one piece 10 of individual electronic program information of a particular broadcast service enterpriser and pieces of general electronic program information of broadcast service enterprisers other than the particular broadcast service enterpriser are transmitted to the viewer for each piece of individual 15 electronic program information by the electronic program information transmitting means.

9. An electronic program information preparing and transmitting apparatus according to claim 1 in which 20 the electronic program information preparing means comprises:
common electronic program information preparing means for preparing common electronic program information;
non-common electronic program information preparing means for preparing first non-common electronic program information 25 not common to the broadcast service enterprisers on the

individual level from the electronic program information of one broadcast service enterpriser for each broadcast service enterpriser and preparing second non-common electronic program information not common to the broadcast service enterprisers

- 5 on the general level from the electronic program information of one broadcast service enterpriser for each broadcast service enterpriser, and

the electronic program information transmitting means comprises:

- 10 electronic program information multiplexing means for multiplexing the common electronic program information prepared by the common electronic program information preparing means, one piece of first non-common electronic program information of a particular broadcast service

- 15 enterpriser prepared by the non-common electronic program information preparing means and pieces of second non-common electronic program information of broadcast service enterprisers other than the particular broadcast service enterpriser with each other to produce multiplexed electronic
20 program information for each particular broadcast service enterpriser; and

multiplexed electronic program information transmitting means for transmitting the multiplexed electronic program information produced by the electronic program information

- 25 multiplexing means to the viewer for each particular broadcast

service enterpriser.

10. An electronic program information preparing and transmitting apparatus according to claim 9 in which transport stream specifying information indicating a transport stream is prepared by the non-common electronic program information preparing means for each broadcast service enterpriser, and the multiplexed electronic program information, in which one piece of first non-common electronic program information of 10 one broadcast service enterpriser is multiplexed, is carried in the transport stream indicated by the transport stream specifying information corresponding to the broadcast service enterpriser.

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15 11. An electronic program information preparing and transmitting apparatus according to claim 1 in which a plurality of channel services are listed in the general electronic program information or in the individual electronic program information of one broadcast service enterpriser 20 prepared by the electronic program information preparing means, and service specifying information indicating the specifying of a particular channel service is arranged in the general electronic program information or the individual electronic program information of the broadcast service 25 enterpriser to automatically select the particular channel

service from the channel services in cases where the broadcast service enterpriser is selected.

12. An electronic program information preparing and
5 transmitting apparatus according to claim 11 in which a viewer attribute is arranged in the general electronic program information or in the individual electronic program information as the service specifying information, a particular channel service, of which a viewer attribute agrees
10 with an attribute of the viewer, being selected from the channel services.

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13. An electronic program information preparing and transmitting apparatus according to claim 11 in which a genre
15 is arranged in the general electronic program information or in the individual electronic program information as the service specifying information, a particular channel service, of which a genre agrees with a viewer favorite genre, being selected from the channel services.

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14. An electronic program information preparing and transmitting apparatus according to claim 1 in which pieces of information of a plurality of television programs are described in the individual electronic program information or
25 the general electronic program information, and program link

describing information indicating that an actual television program actually broadcasted is the same as one or more virtual television programs not actually broadcasted is arranged in the individual electronic program information or
5 the general electronic program information.

15. An electronic program information preparing and transmitting apparatus according to claim 14 in which reference information for referring to information of an
10 actual television program actually broadcasted is added to information of one or more virtual television programs not actually broadcasted, and the reference information is transmitted.

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15 16. An electronic program information preparing and transmitting apparatus according to claim 1 in which pieces of information of one or more television programs are listed in the general electronic program information or the individual electronic program information of each broadcast service
20 enterpriser prepared by the electronic program information preparing means, and a transmission bandwidth is described as the information of each television program.

17. An electronic program information preparing and
25 transmitting apparatus according to claim 16 in which

information indicating one broadcast service enterpriser,
information of a schedule and information of a television
channel are described as the information of each television
program on condition that a display width of each television
5 program is proportional to the transmission bandwidth of the
television program.

18. An electronic program information preparing and
transmitting apparatus according to claim 1 in which one or
10 more main channel services and one or more sub-channel
services subordinate to one main channel service are
hierarchically listed in the general electronic program
information or in the individual electronic program
information prepared by the electronic program information
15 preparing means.

19. An electronic program information preparing and
transmitting apparatus according to claim 1 in which one or
more main television programs and one or more sub-television
20 programs subordinate to one main television program are
hierarchically listed in the general electronic program
information or the individual electronic program information
prepared by the electronic program information preparing
means.

20. An electronic program information preparing and transmitting apparatus according to claim 1 in which one or more main television programs or main channel services and one or more sub-television programs or sub-channel services
5 subordinate to one main television program or main channel service are hierarchically listed in the general electronic program information or the individual electronic program information prepared by the electronic program information preparing means, broadcasting times of the sub-television
10 programs or sub-channel services subordinate to the main television program or main channel service are the same as each other, and the main television program or main channel service is not actually broadcasted.
- 15 21. An electronic program information preparing and transmitting apparatus according to claim 18 in which the general electronic program information including information of the main channel services is transmitted through all transmission lines, and the individual electronic program
20 information including information of the sub-channel services is transmitted through a particular transmission line in which television programs of the sub-channel services are actually transmitted.
- 25 22. An electronic program information preparing and

transmitting apparatus according to claim 18 in which television programs provided by a particular broadcast service enterpriser are carried in a plurality of particular transmission lines, television programs of the sub-channel services are transmitted through one particular transmission line, the general electronic program information including information of the main channel services is transmitted through all transport streams, and the individual electronic program information including information of the sub-channel services is transmitted through each of the particular transmission lines.

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23. An electronic program information preparing and transmitting apparatus according to claim 18 in which sub-channel service specifying information is arranged in the general electronic program information or in the individual electronic program information to specify a particular sub-channel service selected from the sub-channel services in cases where the main channel service of the sub-channel services is tuned by the viewer.

24. An electronic program information preparing and transmitting apparatus according to claim 18 in which a viewer attribute is arranged as information of each sub-channel service, a particular sub-channel service, of which the viewer

attribute agrees with an attribute of the viewer, being selected from the sub-channel services.

25. An electronic program information preparing and
5 transmitting apparatus according to claim 18 in which a genre is arranged as information of each sub-channel service, a particular sub-channel service, of which the genre agrees with a viewer favorite genre, being selected from the sub-channel services.

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26. An electronic program information preparing and transmitting method, comprising the steps of:

- preparing general electronic program information described on a general level from electronic program information of a
15 plurality of broadcast service enterprisers;
preparing individual electronic program information described on an individual level from the electronic program information of one broadcast service enterpriser for each broadcast service enterpriser; and
20 transmitting the general electronic program information of the broadcast service enterprisers and the individual electronic program information of the broadcast service enterprisers.

- 25 27. An electronic program information preparing and

transmitting method according to claim 26 in which the step of preparing individual electronic program information comprising the steps of:

5 preparing a plurality of information tables corresponding to a plurality of channel services as the individual electronic program information of each broadcast service enterpriser;

10 describing pieces of information of a plurality of television programs in each information table;

15 arranging program link describing information as the information of one television program for each information table to indicate that an actual television program actually broadcasted is the same as one or more virtual television programs not actually broadcasted.

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28. An electronic program information preparing and transmitting method according to claim 26 in which the step of preparing individual electronic program information comprising the step of:

20 hierarchically listing one or more main channel services and one or more sub-channel services subordinate to one main channel service in the individual electronic program information.

25 29. An electronic program guide producing apparatus,

~~comprising:~~

~~electronic program information receiving means for receiving electronic program information of a plurality of broadcast service enterprisers;~~

5 ~~common electronic program guide producing means for producing a common electronic program guide of channel services provided by the broadcast service enterprisers from the electronic program information of the broadcast service enterprisers received by the electronic program information~~

10 ~~receiving means; and~~

15 ~~individual electronic program guide producing means for producing an individual electronic program guide of channel services provided by one broadcast service enterpriser from the electronic program information of the broadcast service enterpriser received by the electronic program information~~

20 ~~receiving means for each broadcast service enterpriser.~~

30. An electronic program guide producing apparatus according to claim 29, further comprising:

20 ~~displaying means for displaying a television program of a channel service provided by a particular broadcast service enterpriser selected from the broadcast service enterprisers, displaying the common electronic program guide produced by the common electronic program guide producing means regardless of the particular broadcast service enterpriser, and displaying a~~

particular individual electronic program guide of the
particular broadcast service enterpriser produced by the
individual electronic program guide producing means while
displaying the television program of the channel service
5 provided by the particular broadcast service enterpriser.

31. An electronic program guide producing apparatus according
to claim 30 in which a plurality of channel services are
listed in the electronic program information of one broadcast
10 service enterpriser received by the electronic program
information receiving means, service specifying information
indicating the specifying of a particular channel service
selected from the channel services is arranged in the
electronic program information, and a television program of
15 the particular channel service of the broadcast service
enterpriser is automatically displayed by the displaying means
in cases where the viewer selects the broadcast service
enterpriser.

20 32. An electronic program guide producing apparatus according
to claim 30 in which a plurality of channel services are
listed in one individual electronic program guide produced by
the individual electronic program guide producing means or in
the common electronic program guide produced by the common
25 electronic program guide producing means, a viewer attribute

- is arranged as information of each channel service of the individual electronic program guide or the common electronic program guide, and a television program of a particular channel service of the broadcast service enterpriser is
- 5 automatically displayed by the displaying means in cases where the viewer attribute of the particular channel service agrees with an attribute of the viewer in the individual electronic program guide or the common electronic program guide.
- 10 33. An electronic program guide producing apparatus according to claim 30 in which a plurality of channel services are listed in one individual electronic program guide produced by the individual electronic program guide producing means or in the common electronic program guide produced by the common
- 15 electronic program guide producing means, a genre is arranged as information of each channel service of the individual electronic program guide or the common electronic program guide, and a television program of a particular channel service of the broadcast service enterpriser is automatically
- 20 displayed by the displaying means in cases where the genre of the particular channel service agrees with a viewer favorite genre in the individual electronic program guide or the common electronic program guide.
- 25 34. An electronic program guide producing apparatus according

to claim 30 in which pieces of information of a plurality of television programs are described in one individual electronic program guide produced by the individual electronic program guide producing means or in the common electronic program
5 guide produced by the common electronic program guide producing means, program link describing information indicating that an actual television program actually broadcasted is the same as one or more virtual television programs not actually broadcasted is arranged in the
10 individual electronic program guide or the common electronic program guide, and the individual electronic program guide or the common electronic program information is displayed by the displaying means.

15 35. An electronic program guide producing apparatus according to claim 30 in which information of a particular program extending over a plurality of television channels is described in one individual electronic program guide produced by the individual electronic program guide producing means or in the
20 common electronic program guide produced by the common electronic program guide producing means, and the information of the particular program is displayed by the displaying means as the individual electronic program guide or the common electronic program guide.

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36. An electronic program guide producing apparatus according to claim 30 in which information of a particular television program extending over a plurality of television channels is described in one individual electronic program guide produced by the individual electronic program guide producing means or the common electronic program guide produced by the common electronic program guide producing means, the information of the particular television program is described in each television channel of the individual electronic program guide or the common electronic program guide, the information of the particular television program described in each television channel is displayed by the displaying means as the individual electronic program guide or the common electronic program guide, and the selection of the particular television program is visually indicated in each television channel in cases where the particular television program of one television channel is selected.

37. An electronic program guide producing apparatus according to claim 30 in which display quality information is described as information of each television program in one individual electronic program guide produced by the individual electronic program guide producing means or in the common electronic program guide produced by the common electronic program guide producing means to indicate a display quality of the

television program, and pieces of information of the television programs are displayed by the displaying means as the individual electronic program guide or the common electronic program guide to indicate the display quality of 5 each television program according to the display quality information of the television program.

38. An electronic program guide producing apparatus according to claim 30 in which information of one broadcast service enterpriser, information of a schedule and information of a 10 television channel are described as information of each television program in one individual electronic program guide produced by the individual electronic program guide producing means or in the common electronic program guide produced by 15 the common electronic program guide producing means, a transmission bandwidth is described as information of each television program in the individual electronic program guide or the common electronic program guide, and a three-dimensional electronic program guide composed of three 20 components of the broadcast service enterpriser, the schedule and the television channel is displayed by the displaying means on condition that a display width of each television program in the three-dimensional electronic program guide is proportional to the transmission bandwidth of the television 25 program.

39. An electronic program guide producing apparatus according to claim 30 in which information of television programs is described in one individual electronic program guide produced by the individual electronic program guide producing means or in the common electronic program guide produced by the common electronic program guide producing means, the information of the television programs is displayed by the displaying means as the individual electronic program guide or the common electronic program guide while displaying a television program of one television channel, and the electronic program guide producing apparatus, further comprises:

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television channel changing means for changing a television program of a first television channel to a television program of a second television channel in cases where the television program of the first television channel has no relationship with the television program of the second television channel and changing the television program of the first television channel to a television program of a third television channel in cases where the television program of the first television channel refers to the information of the television program of the second television channel, the television program of the second television channel refers to the information of the television program of the first television channel or the television programs of the first and second television

channels refers to the information of a television program of one television channel.

40. An electronic program guide producing apparatus according
5 to claim 39 in which channel identifying information indicating the second television channel or the third television channel changed by the television channel changing means and one or more fourth television channels is displayed in cases where the second television channel or the third
10 television channel and the fourth television channels refer to information of the same television channel, and channel identifying information indicating the second television channel or the third television channel changed by the television channel changing means and one or more fifth
15 television channels is displayed in cases where the fifth television channels refer to information of the second television channel or information of the third television channel.
- 20 41. An electronic program guide producing apparatus according to claim 30 in which information of one or more main channel services and information of one or more sub-channel services subordinate to one main channel service are hierarchically described in one individual electronic program guide produced
25 by the individual electronic program guide producing means or

in the common electronic program guide produced by the common electronic program guide producing means, and the information of the main channel services and the information of the sub-channel services hierarchically described are displayed by the
5 displaying means as the individual electronic program guide or the common electronic program guide.

42. An electronic program guide producing apparatus according to claim 30 in which information of one or more main
10 television programs and information of one or more sub-television programs subordinate to one main television program are hierarchically described in one individual electronic program guide produced by the individual electronic program
15 guide producing means or the common electronic program guide produced by the common electronic program guide producing means, and the information of the main television programs and the information of the sub-television programs hierarchically described are displayed by the displaying means as the individual electronic program guide or the common electronic
20 program guide.

43. An electronic program guide producing apparatus according to claim 30 in which information of a main television program and information of one or more sub-television programs
25 subordinate to the main television program are hierarchically

described in one individual electronic program guide produced by the individual electronic program guide producing means or the common electronic program guide produced by the common electronic program guide producing means, the information of 5 the main television programs is displayed by the displaying means as the individual electronic program guide, and the information of the sub-television programs is displayed by the displaying means as the individual electronic program guide or the common electronic program guide in cases where the main 10 television program or a channel service of the main television program described in the information of the main television programs is selected.

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44. An electronic program guide producing apparatus according 15 to claim 30 in which information of a main television program and information of one or more sub-television programs subordinate to the main television program are hierarchically described in one individual electronic program guide produced by the individual electronic program guide producing means or the common electronic program guide produced by the common 20 electronic program guide producing means, a viewer attribute is described as information of each sub-television program, and a particular sub-television program is automatically displayed by the displaying means, on condition that the 25 viewer attribute described as the information of the

particular sub-television program agrees with an attribute of the viewer, in cases where the viewer selects the main television program.

- 5 45. An electronic program guide producing apparatus according to claim 30 in which information of a main television program and information of one or more sub-television programs subordinate to the main television program are hierarchically described in one individual electronic program guide produced by the individual electronic program guide producing means or the common electronic program guide produced by the common electronic program guide producing means, a genre is described as information of each sub-television program, and a particular sub-television program is automatically displayed by the displaying means, on condition that the genre described as the information of the particular sub-television program agrees with a viewer favorite genre, in cases where the viewer selects the main television program.
- 20 46. An electronic program guide producing apparatus according to claim 30 in which one of a plurality of sub-services is selected in cases where a main service is selected by the viewer.

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